

Serial No. 10/046,443
RCE to FOA of 11/21/05

REMARKS

In response to the Final Office Action of November 21, 2005, please enter the amendments in this RCE. Specifically, five claims (1, 10, 16, 19, and 22) are amended. No new matter is entered. Claims 1 – 22 are presented for examination.

I. Claim Rejections: 35 U.S.C. §103(a)

Claims 1 – 8, 10 – 12, 15 – 17, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,557,596 (Gibson) in view of USPN 4,423,305 (Pfeiffer).

Applicant respectfully traverses the rejections.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art cited must teach or suggest all the claim limitations. *See M.P.E.P. § 2143.* Applicant asserts that the rejection does not satisfy these criteria.

No Suggestion/Motivation to Modify/Combine References

For at least the following reasons, no suggestion or motivation exists to modify or combine Gibson in view of Pfeiffer.

First, Applicant argues that no teaching or suggestion exists to make the combination because the references are directed to completely different inventions. Gibson is directed to an ultra-high density storage device (1: 59-61). The storage device includes field emitters, a storage medium, and a micromover (2:65 – 3:5). By contrast, Pfeiffer is directed to a complex arrangement of plates, apertures, and lenses to control alignment of an electron beam onto a semiconductor wafer for forming an integrated circuit (1:16-19; 3: 39-46).

The Examiner must provide *objective evidence*, rather than subjective belief and unknown authority, of the requisite motivation or suggestion to combine or modify the cited references. *In re Lee*, 61 U.S.P.Q.2d. 1430 (Fed. Cir. 2002). Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention absent some teaching or suggestion supporting the combination. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984). Such teaching or suggestion does not exist.

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Second, Applicant argues that no teaching or suggestion exists to make the combination because the references are directed to solving completely different problems. In Gibson, the Background section discusses the problems with increasing storage density with Scanned Probe Microscopy (SPM) and Scanning Tunneling Microscopy (STM). In fact, Gibson explicitly provides a "need paragraph" and states that a need exists for a storage device having fast access times and high data rates (1: 52-56). In Pfeiffer, the Background section discusses the problems that multiple daily adjustments are required for apparatus that produce electron beams. Pfeiffer solves this problem since his apparatus "requires only a daily check" (2: 13-22).

To establish a *prima facie* case, the Examiner must not only show that the combination includes *all* of the claimed elements, but also a convincing line of reason as to why one of ordinary skill in the art would have found the claimed invention to have been obvious in light of the teachings of the references. *Ex parte Clapp*, 227 U.S.P.Q. 972 (B.P.A.I. 1985). In light of the completely different inventions and problems being solved in Gibson and Pfeiffer, no suggestion or motivation exists to combine or modify these references.

For at least these reasons, Applicant respectfully asks the Examiner to withdraw the rejection since a *prima facie* case of obvious has not been established.

No Reasonable Expectation of Success

No reasonable expectation of success has been established for modifying Gibson with the teachings of Pfeiffer to arrive at the recitations of the claims. In other words, even assuming *arguendo* that Gibson and Pfeiffer are combinable (which they are not), the combination will not yield a reasonable expectation of success.

Garrison expressly teaches a storage device that is extremely small. For example, each electron field emitter has "a radius of curvature of about one nanometer to hundreds of nanometers" (3: 6-9). A single tiny storage area can contain hundreds of millions of bits (3: 57 – 65). By stark contrast, Pfeiffer teaches a large and cumbersome arrangement of plates, apertures, and lenses to control alignment of an electron beam onto a semiconductor wafer for forming an integrated circuit (1:16-19; 3: 39-46). As shown for example in FIG. 1 of Pfeiffer 3,894,271, the apparatus includes a first plate 14, an alignment yoke 15, blanking plates 16, and magnetic coils 21-24, deflection plates 25-28, just to name a few examples. It is

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impossible for the large apparatus of Pfeiffer to fit within the tiny spaces of Gibson. The combination of Gibson with Pfeiffer simply cannot work.

In view of these deficiencies, the Office Action has failed to establish a reasonable expectation of success with a combination or modification of Gibson and Pfeiffer. Therefore, the *prima facie* case of obviousness has not been established.

All Elements Not Taught or Suggested

All of the elements of the claims are not taught or suggested in Gibson and Pfeiffer. In other words, evening assuming *arguendo* that Gibson and Pfeiffer are successfully combinable (which they are not), the alleged combination does not teach or suggest all the elements in the claims. Examples for various independent and dependent claim groups are provided below.

Claim 1

Independent claim 1 recites numerous limitations that are not taught or suggested in Gibson and Pfeiffer. For example, claim 1 recites "sensing the emitter voltage on the electron emitter" (emphasis added). Nowhere does Pfeiffer teach or suggest that the emitter voltage is sensed "on" the electron emitter. The Office Action cites Pfeiffer at column 5, lines 58-66. This section of Pfeiffer teaches a sensing plate 36 having an aperture. Nowhere does Pfeiffer suggest that this sensing plate 36 senses the emitter voltage "on" the electron emitter.

For at least these reasons, claim 1 is allowable over Gibson in view of Pfeiffer. The dependent claims are allowable for at least these reasons.

As another example, claim 1 recites "supplying a non-inverted input voltage to an amplifier that follows the emitter voltage." The Office Action cites FIG. 4 of Pfeiffer '271. This figure teaches a current measuring plate 34 that is connected to an input of an operational amplifier 43. The figure, however, does not suggest that a non-inverted voltage is supplied to this amplifier that follows the emitter voltage.

For at least these reasons, claim 1 is allowable over Gibson in view of Pfeiffer. The dependent claims are allowable for at least these reasons.

Claim 10

Independent claim 10 recites numerous limitations that are not taught or suggested in Gibson and Pfeiffer. For example, claim 10 recites "a sensing switch coupled to the electron

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emitter to sense voltage on the electron emitter" (emphasis added). The Office Action cites a sensing plate in Pfeiffer. This plate is not a "switch." The Examiner is respectfully asked to construe the words in the claim with their ordinary and customary meaning (see MPEP 2111.01). The plate 36 in Pfeiffer is not a switch.

For at least these reasons, claim 10 is allowable over Gibson in view of Pfeiffer. The dependent claims are allowable for at least these reasons.

Claim 16

Independent claim 16 recites numerous limitations that are not taught or suggested in Gibson and Pfeiffer. For example, claim 16 recites a lens means for focusing emitted electrons onto a "atomic resolution storage means." The Office Action cites Pfeiffer at column 4, lines 23-27. Nowhere does this section of Pfeiffer, or any section of Pfeiffer, teach or suggest focusing an electron beam on a storage means. Again, Pfeiffer teaches that the target is a semiconductor wafer in which it is desired to form an integrated circuit, not a storage means.

For at least these reasons, claim 16 is allowable over Gibson in view of Pfeiffer. The dependent claims are allowable for at least these reasons.

II. Claim Rejections: 35 U.S.C. §103(a)

Claims 9 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,557,596 (Gibson) in view of USPN 4,423,305 (Pfeiffer) and USPN 6,515,287 (Notte). Applicant respectfully traverses the rejections.

No Suggestion/Motivation to Modify/Combine References

For at least the reasons given above in connection with section I, no suggestion or motivation exists to modify or combine Gibson in view of Pfeiffer and Notte.

No Reasonable Expectation of Success

For at least the reasons given above in connection with section I, no reasonable expectation of success has been established for modifying Gibson with the teachings of Pfeiffer and Notte.

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All Elements Not Taught or Suggested

All of the elements of the claims are not taught or suggested in Gibson in view of Pfeiffer and Notte. In other words, even if assuming *arguendo* that Gibson, Pfeiffer, and Notte are successfully combinable (which they are not), the alleged combination does not teach or suggest all the elements in the claims.

Claim 19

Independent claim 19 recites numerous limitations that are not taught or suggested in Gibson in view of Pfeiffer and Notte. For example, claim 19 recites "sensing the emitter voltage on the electron emitter" (emphasis added). Nowhere does Pfeiffer teach or suggest that the emitter voltage is sensed "on" the electron emitter. The Office Action cites Pfeiffer at column 5, lines 58-66. This section of Pfeiffer teaches a sensing plate 36 having an aperture. Nowhere does Pfeiffer suggest that this sensing plate 36 senses the emitter voltage "on" the electron emitter.

For at least these reasons, claim 19 is allowable over Gibson in view of Pfeiffer and Notte. The dependent claims are allowable for at least these reasons.

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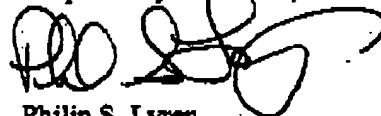
CONCLUSION

In view of the above, Applicant believes that all pending claims are in condition for allowance. Allowance of these claims is respectfully requested.

Any inquiry regarding this Amendment and Response should be directed to Philip S. Lyren at Telephone No. (832) 236-5529. In addition, all correspondence should continue to be directed to the following address:

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CERTIFICATE UNDER 37 C.F.R. 1.8

The undersigned hereby certifies that this paper or papers, as described herein, is being transmitted to the United States Patent and Trademark Office facsimile number 571-273-8300 on this 17th day of February, 2006.

By 
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